

## CLAIMS

### WHAT IS CLAIMED:

1. A lead connector arrangement, comprising:  
a non-cylindrically shaped connector pin coupled to a lead conductor; and  
a connector sleeve assembly to receive the non-cylindrically shaped connector pin, the  
connector sleeve assembly including an insert with an axial bore formed therein  
that complements the shape of the connector pin.
2. The lead connector arrangement of claim 1, wherein the non-cylindrically shaped  
connector pin comprises at least one planar surface.
3. The lead connector arrangement of claim 1, wherein the non-cylindrically shaped  
connector pin comprises a polygonal shaped connector pin.
4. The lead connector arrangement of claim 3, wherein the polygonal shaped  
connector pin comprises at least one of a triangular, square, rectangular, and hexagonal shaped  
connector pin.
5. The lead connector arrangement of claim 4, wherein the axial bore comprises a  
polygonal shape that complements the shape of the polygonal shaped connector pin to reduce  
axial rotation of the connector pin within the axial bore of the insert.
6. The lead connector arrangement of claim 4, wherein the axial bore comprises at  
least one of a triangular, square, rectangular, and hexagonal shape that complements the shape of  
the at least one of a triangular, square, rectangular, and hexagonal shaped connector pin to reduce  
axial rotation of the connector pin within the axial bore of the insert.
7. The lead connector arrangement of claim 1, wherein the connector pin comprises  
an inner threaded recess within a tip of the connector pin for coupling to a threaded pull tool, and  
wherein the pull tool is screwed into the inner threaded recess of the connector pin and the

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connector pin is pulled through the connector sleeve assembly until it is inserted within the axial bore of the insert.

8. The lead connector arrangement of claim 1, wherein the lead connector arrangement couples the lead conductor to an implantable medical device.

9. A method, comprising:

providing a non-cylindrically shaped connector pin coupled to a lead conductor;  
providing a connector sleeve assembly to receive the connector pin, the connector sleeve assembly including an insert with an axial bore formed therein that complements the shape of the connector pin; and  
inserting the connector pin within the axial bore of the insert.

10. The method of claim 9, wherein providing a non-cylindrically shaped connector pin further comprises:

providing a polygonal shaped connector pin coupled to a lead conductor.

11. The method of claim 10, wherein providing a polygonal shaped connector pin further comprises:

providing at least one of a triangular, square, rectangular, and hexagonal shaped connector pin coupled to a lead conductor.

12. The method of claim 9, wherein inserting the connector pin within the axial bore of the insert further comprises:

screwing a threaded pull tool into an inner threaded recess within a tip of the connector pin;

pulling the connector pin through the connector sleeve assembly until the connector pin is inserted within the axial bore of the connector sleeve assembly; and

unscrewing the threaded pull tool from the inner threaded recess of the connector pin.

13. A lead connector arrangement, comprising:

a non-cylindrically shaped connector pin coupled to a lead conductor; and

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an adapter block assembly for receiving the connector pin within a cavity formed therein, the adapter block assembly capable of connecting the lead conductor to at least two types of connector standards; wherein the adapter block assembly includes an insert with an axial bore formed therein within the cavity that complements the shape of the connector pin.

14. The lead connector arrangement of claim 13, wherein the non-cylindrically shaped connector pin comprises at least one planar surface.

15. The lead connector arrangement of claim 13, wherein the non-cylindrically shaped connector pin comprises a polygonal shaped connector pin.

16. The lead connector arrangement of claim 15, wherein the polygonal shaped connector pin comprises at least one of a triangular, square, rectangular, and hexagonal shaped connector pin.

17. The lead connector arrangement of claim 13, wherein the lead connector arrangement couples the lead conductor to an implantable medical device.

18. A method, comprising:  
providing a non-cylindrically shaped connector pin coupled to a lead conductor;  
providing an adapter block assembly to receive the connector pin within a cavity formed therein, the adapter block assembly being capable of connecting the lead conductor to at least two types of connector standards, the adapter block assembly including an insert with an axial bore formed therein within the cavity that complements the shape of the connector pin; and  
inserting the connector pin within the axial bore of the insert.

19. The method of claim 18, wherein providing a non-cylindrically shaped connector pin coupled to a lead conductor further comprises:  
providing a polygonal shaped connector pin coupled to a lead conductor.

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20. The method of claim 19, wherein providing a polygonal shaped connector pin coupled to a lead conductor further comprises:

providing at least one of a triangular, square, rectangular, and hexagonal shaped connector pin coupled to a lead conductor.

21. The method of claim 18, wherein inserting the connector pin within the axial bore of the insert further comprises:

screwing a threaded pull tool into an inner threaded recess within a tip of the connector pin;

pulling the connector pin through the adapter block assembly until the connector pin is inserted within the axial bore of the adapter block assembly; and

unscrewing the threaded pull tool from the inner threaded surface of the connector pin.

22. A lead connector arrangement, comprising:

a connector pin coupled to a lead conductor;

a connector sleeve assembly having a cavity formed therein to receive the connector pin and lead conductor; and

a retraction stop mechanism to reduce axial rotation of the lead conductor within the connector sleeve assembly when the connector pin is fully extended within the connector sleeve assembly.

23. The lead connector arrangement of claim 22, wherein the retraction stop mechanism comprises:

a stationary member affixed to an inner surface of the cavity formed within the connector sleeve assembly; and

a moveable member affixed to an outer surface of the lead conductor; and

wherein the moveable member engages the stationary member when the connector pin is fully extended within the connector sleeve assembly and thereby reduces axial rotation of the lead conductor.

24. The lead connector arrangement of claim 23, wherein the stationary member includes a plurality of fixed cam and axial stop surfaces and the moveable member includes a plurality of rotatable cam and axial stop surfaces that face the fixed cam and axial stop surfaces

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of the stationary member in a locked relation when the moveable member engages the stationary member.

25. The lead connector arrangement of claim 22, wherein the lead connector arrangement couples the lead conductor to an implantable medical device.

26. A method to reduce axial rotation of a lead conductor within a connector sleeve assembly, the lead conductor having a connector pin affixed to one end thereof, the method comprising:

screwing a threaded pull tool into an inner threaded recess within a tip of the connector pin;

pulling the lead conductor within a cavity of the connector sleeve assembly until a movable retraction stop member of the lead conductor engages with a fixed retraction stop member of the connector sleeve assembly; and

unscrewing the threaded pull tool from the inner threaded recess of the connector pin during the engagement of the moveable and fixed retraction stop members.

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